

MEMORANDUM

April 2, 2004

To: D. Hall

Via: K. Kunaniec

From: T. Underwood

Re: Outside Test OS-359; December 2, 2003 Source Test

Plant No: B2626, Valero Refining Company in Benicia

Source: S-1030; Gas Turbine with Heat Recovery Steam Generator (S-1031)

Abated by: A-60; SCR

A/C No: 2488

Cond No. 19177; NOx 7.29 lbs/hr, 2.5 ppm at 15% Oxygen; CO 10.692 lbs/hr, 6.0 ppm at 15% Oxygen;
NH3 10 ppm at 15% Oxygen; POC 2.037 lbs/hr; SO2 10.75 lbs/hr; SAM 7 tpy; PM-10 4.65
lbs/hr

By: Best Environmental

I have reviewed the source test report cited above and note the following:

- 1) I did not witness the test.
- 2) All pertinent quality assurance procedures appear to have been followed.
- 3) The testing appears to have been conducted properly and by personnel who are familiar with proper source testing techniques.
- 4) Results of the testing are that the Gas Turbine was emitting less POC than the limits cited above.
- 5) These results demonstrate compliance with the permit conditions.

This source was in compliance with District Regulations.

TABLE #1

Valero
CoGen
TNMHC Emissions

TEST	1	2	3	AVERAGE	LIMIT
Test Location	Outlet	Outlet	Outlet		
Date	12/2/03	12/2/03	12/2/03		
Time	16:29	17:20	18:09		
Standard Temp., °F	70	70	70		
Turbine Load, MMBtu/hr	452.17	455.2	457.9	455.1	
Flow Rate, DSCFM	205,087	207,637	207,777	206,834	
O ₂ , %	14.27	14.31	14.27	14.28	
	9.3	9.3	9.3	9.3	
THC, ppm (Wet)	25.4	25.6	27.0	26.0	
THC, ppm (Dry)	28.0	28.3	29.8	28.7	
CH ₄ , ppm	27.5	27.7	27.7	27.7	
TNMHC, ppm	<1.0	<1.0	2.106	<1.4 <1	
TNMHC, ppm @ 15% O ₂	<0.9	<0.9	1.87 <1	<1.20.9	
TNMHC, lbs/hr	<0.51	<0.52	1.08.5	<0.70.5	2.03
TNMHC, lbs/day	<12.22	<12.37	26.00 <12	<16.86 <12	
TNMHC, lbs/MMBtu	<0.001	<0.001	0.002	<0.002	

WHERE,

ppm = Parts Per Million Concentration
 lbs/hr = Pound Per Hour Emission Rate
 THC = Total Hydrocarbons as Methane (MW = 16)
 TNMHC = Total Non-Methane Hydrocarbons as Methane (MW = 16)
 lbs/MMBtu = Pounds per million BTU

CALCULATIONS:

ppm @ 15% O₂ = ppm * 5.9 / (20.9 - stack O₂)
 lbs/MMBtu = Fd * M.W. * ppm * 2.59E-9 * (20.9 / (20.9 - %O₂))
 Dry ppm = ppm Wet * 100 / (100 - H₂O%)
 Fd = 8621

*correction to Run 3
 data made by T.U.
 BAAEMD from raw data
 page B-5.
 T.U. 4/2/14*